

Xpresa bo mes

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Aruba and Sint Maarten: Two examples of tourism causing economic growth, but not increasing productivity

THE CORE question of this article is whether the economic growth dimension of the Aruba/Sint Maarten model has actually lead to increased productivity, and could hence be qualified as intensive growth providing a rising level of per capita wealth. Based on the premise that both economies are almost exclusively dependent on the tourism industry as the engine of growth, selected tourism volume indicators are set off against the development of real GDP. A rising productivity level would be indicated by a real GDP growth index that exceeds the increase in tourism service volume indicators such as numbers of cruise ship visitors or visitor nights spent.

Furthermore, real per capita GDP of both countries is used as a proxy for labour productivity. The development of real per capita GDP over time is measured for Aruba as well as Sint Maarten to provide an answer to the question in what direction labour productivity has developed. At the same time, real per capita GDP can be used as an indicator for average income and provides an indicative answer to the question whether average wealth has increased over the period under review. The limitations of GDP as a measure of development or even economic growth, as pointed out in the 2009 report by the 'Sarkozy commission' are acknowledged here. It is important to recognise that growth of real per capita GDP is probably a necessary, but certainly not a sufficient condition for increase in

well-being. Conversely however, under conditions of stagnant or declining real per capita GDP, it is theoretically possible, but highly unlikely that general well-being would have increased.

Aruba and Sint Maarten caught the tourism development wave of the 1960s

Aruba as a tourism destination developed gradually and modestly during the 1960s and 1970s, while the oil industry still constituted the main economic pillar. When the introduction of cheap jet transportation opened the Caribbean for mass tourism from the US, tourism was recognized as an alternative source of economic activity in Aruba. The attainment on 1 January 1986 of constitutional separation by Aruba from the Netherlands Antilles, known locally as 'status aparte', came on the heels of the final closure of the Lago refinery. The demise of the oil industry made the GDP collapse, losing over a quarter of production. However, a sharp tourism-driven reversal caused the GDP to overtake the previous high as early as 1988 with Afl. 1,130 million, continuing double-digit real growth in the next two years

Through a crash programme of hotel construction, actively and purposefully aided by government stimuli as Vanegas and Croes put it, in addition to improving infrastructure 'the government provided direct support through hotel loan guarantees to assist

private investors, tax holidays and other fiscal incentives'. Under these conditions, the tourism sector developed rapidly during the late 1980s and 1990's, settling into a more moderate growth rate around the turn of the century. Of the two countries Sint Maarten relies more heavily on day visitors brought in by cruise ships.

The start of tourism-driven economic development on Sint Maarten took place earlier and initially somewhat more gradually than on Aruba. Sint Maarten's economy during the oil industry boom of Curaçao and Aruba between 1930 and 1970 had been the mirror image of the larger Dutch islands'; many Sintmaarteners migrated to Curaçao and especially Aruba to find employment. They typically transferred part of their earnings to their relatives back home, giving rise to the branding of their home island as a 'postwisseleconomie' (money order economy). Total population reached a low point of around 1,500 persons in 1951.

The stability offered by the Netherlands Antilles and later on Aruba separately, as part of the Dutch Kingdom, attracted foreign investments in hotels and other services. Foreign direct investment, initially subsidized by tax holidays and financial government guarantees, created hotels built or operated by US hotel chains, themselves increasingly globalizing, to the specifications expected by the American tourist. In that era, the hospitality industry

started looking for overseas relocation possibilities in the same manner. Aruba and Sint Maarten tapped into this trend, and both became concentrated pockets of high intensity tourism facilities, guided by know-how mainly embedded in the franchises of foreign hotel chains. Aruba and Sint Maarten from the onset developed their tourism industry relying on immigrant labour from nearby islands and from the South American mainland. The engagement of foreign labour was initially seen as rotating, seasonal, or both. However, in effect both islands created their own permanent sub-regional division of labour, to the extent that this labour supply mechanism became an integral and indispensable attribute of their development strategy.

Aruba and Sint Maarten are not the only Small Island Tourism Economies

Aruba and Sint Maarten, as Small Island Developing States (SIDS), are not alone in their development of strategies that cope with their 'islandness', and that search out opportunities available in a globalizing world. In the era of globalization, a number of distinct island development models have been recognized in literature. Small island models focus on the specific and unique circumstances of small island economies as determinants of their development possibilities. Therefore the MIRAB, PROFIT and SITE models described below do

not so much describe alternatives or counterpoints to globalization, but indicate locally applied consistent strategies by small island jurisdictions in successfully carving out niches in the global economy.

The taxonomy of island development models takes off in the 1980 with the description of a strategy adopted by a number of Pacific island territories. The first type is ‘Migration, Remittances, Aid and Bureaucracy’ model or MIRAB. The strategy of rotating temporary emigration that gives rise to a steady stream of remittances as an important source of income in the home island is also recognizable as the mainstay of Sint Maarten’s development between 1930 and 1970. Nowadays, Aruba and Sint Maarten are on the receiving end of migration from MIRAB classified Caribbean islands like Haiti and Dominica. The aid and bureaucracy aspects of the MIRAB model are highly relevant as well in the context of the (former) Netherlands Antilles as a high level of Dutch aid co-existed with an inefficient two-layered government apparatus. Presently however the MIRAB model is of limited relevance to Aruba or Sint Maarten.

A different distinguishable class of island development is proposed, with islands exploiting certain economic niches based on a strategic toolset, consisting of a purposely managed (in) migration policy (People); leveraging control over natural resources such as oil, fishing rights or strategic location (Resource management); carving out a high degree of autonomy while remaining part of a larger national entity (Overseas engagement) ; a distinctive regime in the field of banking and insurance, with a related favourable tax regime (Finance) and powers over air and sea links (Transportation). This island development model spells PROFIT.

The PROFIT model is certainly relevant to Aruba and Sint Maarten as well. Specifically the straddling of the fence by the Netherlands Antilles and its successors, consistently striving for a maximum level of autonomy, while steadfastly remaining within the Kingdom and rejecting any suggestion of independence, is a recognizable PROFIT attribute. The constitutional link to the

	Aruba	Sint Maarten
Land area (km2)	193	341
Population	103,000	30,000
Tourists (stay-over visitors)	694,000	486,000
Day visitors (cruise passengers)	591,000	1,438,000
Average stay (nights)	7.9	5
Room capacity	9,062	3,532
Tourist spending per year (US\$ mln.)	1,076	652
Spending per resident (US\$)	10,447	21,733
Tourists per 1,000 residents (average p. year)	162	345
Rooms per km2	47.0	103.9

Netherlands remains an integral part of the investment climate as well as the ‘bridging’ role the Dutch dependencies nowadays envision between the Caribbean and Latin America on the one hand and Europe on the other. Being overshadowed by tourism as the main pillar of development, neither Aruba’s nor Sint Maarten’s offshore financial sector have been able to prosper in the new era of weeding out doubtful financial practices, most clearly represented by the Financial Action Task Force (FATF) established in 1989.

Somewhat surprisingly, the Small Island Tourism Economy (SITE) model came to the scene relatively late although it is based on work from the 1990s with the introduction of the ‘Tourism Penetration Index’ as a measure of the dominance of tourism in an island economy. The SITE model, originally mainly applied to Caribbean cases, is predated by an earlier tourism-focused variety of the Pacific MIRAB model, postulated in 1996 as ‘TOURAB’. Of all small island models, the SITE category is the most relevant to Aruba and Sint Maarten. As a measure of SITE-ness, the Tourism Penetration

Index (TPI) is used, combining and adapting existing tourism-intensity indicators. Research shows that St Maarten (0.935) and Aruba (0.525) occupy the first and third positions respectively in terms of TPI, ‘outperforming’ Caribbean tourism frontrunners such as Bermuda, the Cayman Islands and the US Virgin Islands, based on 2006 values.

Table 1. Selected 2006 tourism statistics and density indicators for Aruba and Sint Maarten

As the figures show Sint Maarten leans more heavily towards cruise tourism, while Aruba’s focus is on the hotel- and timeshare industry. In Sint Maarten, the stay-over sector developed rapidly at first but met with the obvious space constraints of its 34 km2 surface area compared to Aruba’s 179 km2. In 1997, stay-over versus cruise visitor proportion was 65-35 for Aruba against 40-60 for Sint Maarten. In 2007 the proportions had diverged even more: the Aruban ratio stabilized at 62-38, while that of Sint Maarten developed to 25-75.

Aruba as well as Sint Maarten fall squarely into the SITE category, with some recognizable PROFIT attributes. Some even place Aruba in the PROFIT/SITE overlap, probably by virtue of its -dwindling - offshore financial and trade sector. The SITE model however offers few analytical tools in terms of recognizing motives and instruments of strategic choices made by island states. In the cases of Aruba and Sint Maarten it is worthwhile to investigate how and

why the SITE model was followed so successfully, what the ensuing bottlenecks are and what possible avenues for improvement might exist.

Aruba and Sint Maarten are not as vulnerable as they seem

This section further analyses the Aruba and Sint Maarten model in terms of the main factors of production; labour, capital and technology, taking into account the institutional framework in which they operate. Starting like Sint Maarten with no significant indigenous production sectors and being almost depopulated, or in the case of Aruba, with a recently collapsed oil industry, there was hardly a question of tourism driving out other types of employment or industry. The risk of a “Dutch disease” situation with one dominant sector crowding out existing alternative economic sectors did therefore not materialise on these islands. Bertram and Poirine argue therefore that in this sense ‘Dutch Disease’ is treated by the islands as an evolutionary opportunity rather than a threat.

Labour supply plays an unconventional role at the macroeconomic level in Aruba and Sint Maarten, being in effect highly adaptable to national economic development. Each phase of expansion by (foreign) direct investment in tourism industry has been matched by an increase in labour supply through immigration. Moreover, some immigrant labour supply is rotational or otherwise temporary, so labour supply can even be modified to match short-run cyclical or seasonal changes in demand.

Contrary to many open-economy developing countries, especially around the time of the ‘take-off’ of Aruba’s and Sint Maarten tourism bonanza, the two island economies cannot be readily qualified as ‘resource-based’. Resource-based economies suffer certain economic

development issues not because of the provenance of their product, but rather because of where their product is located in the production chain. In contrast to exporters of products like minerals, oil and agricultural raw materials, Aruba and Sint Maarten deliver a service directly to end-users in the global North or in one of the emerging economies. The classic issues of declining barter terms of trade, vulnerability to changes in production techniques, and other downstream dependencies do not apply.

In the present debate on island development economics, the 'vulnerability' thesis is under fire. In fact, following the definition of 'vulnerability' it turns out that islands with higher vulnerability indicators also have higher per capita GDPs. As in many cases small island economies are doing remarkably well, in spite of or even by virtue of their islandness, an alternative 'resilience' paradigm is proposed, supported by the concept of 'strategic flexibility'. Different authors argue that it is the capability to quickly adapt to changing opportunities in the globalized marketplace that makes an island economy resilient. Success in this respect is promoted by multi-functionality, not with the aim of concurrent diversification – which would be prohibited by diseconomies of scale – but with the goal of being able to quickly switch from one branch or variety of production or service to the other.

Certain institutional factors promote resilience. For instance it appears many non-sovereign island jurisdictions fare better than those that gained independence, a circumstance of special relevance to Aruba and Sint Maarten with their continued ties to the Dutch Kingdom.

For the type of hyper-specialization that stems from the absence of economies of scale and the ensuing non-feasibility of risk-spreading through diversification

the term 'speciation' is used: "Speciation refers to the sort of specialization in which an entire community takes advantage of a niche of evolutionary opportunity by adopting a particular economic 'personality' with its own distinctive set of institutions, policy imperatives, and mutual understandings amongst the participating population."

The resilience of these one-pillar economies to external shocks has been illustrated convincingly over the past decade. Shocks like the impact of the 9/11 terrorist attacks on global aviation, the 2005 Natalee Holloway disappearance in Aruba or the 2008 global financial crisis have affected both economies measurably, but none of these incidents have had a profound or lasting impact. This is mainly due to rapid and extensive reactive marketing efforts from the governments and private sectors alike.

In terms of factors of production, some bottlenecks of the model can be readily predicted. Most obviously, the natural resources in terms of available coastline on both islands are intrinsically limited, and the trend to fill each length of ocean front with tourist accommodation is visible, with the logical consequence of increasing high-rise construction. More indirectly, the surging population fills both islands at the cost of natural surroundings and places both territories at the top of the list of population density in the Caribbean.

Aruba and Sint Maarten's development made possible by immigration

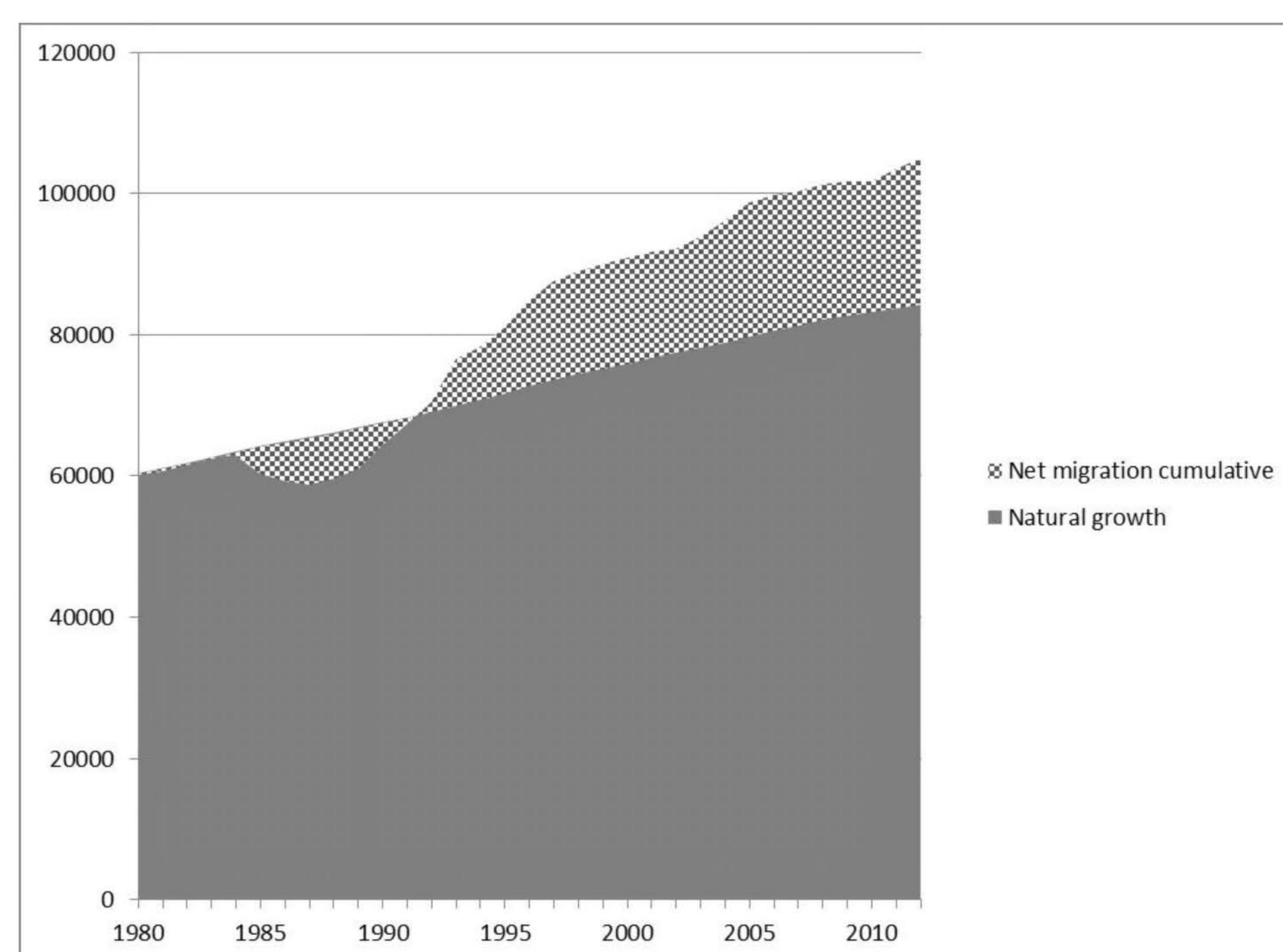
Given the intertwined nature of Aruba and Sint Maarten and their neighbouring states and territories in terms of migration, it is useful to see their development model as a regional rather than a national one. Intra-Caribbean migration as such is hardly new; labour demand-driven migration between the islands has occurred

in the region for centuries, with impulses ranging from seasonal demand in the sugar cane industry to projects like the construction of the Panama Canal. The trend we see nowadays is more structural however. The movement from being a net exporter of labour to a net importer in the Caribbean is described as a 'migration transition'.

Current structural migration movements have probably changed the Aruban and Sint Maarten societies irreversibly. The extent of tourism development in Aruba as well as in Sint Maarten almost immediately outgrew the supply on the local labour markets. This may be remarkable in the Aruban case, as their tourism development was initially intended to compensate for the loss of jobs following the closing of the Lago refinery. Figure 1 clearly shows the population dip following the 1985 closing of the Lago, followed by the rapid take-off of the late 1980s and the consistent population growth thereafter. As a point of reference the cumulative net migration from 1980 onwards is shown in the same graph, making clear that some 24,000 of the more than 40,000 population growth

workers, new immigrant labour was employed from the start, hailing from the Latin American mainland and the larger Caribbean islands. The vast majority of new positions was filled by immigrants. According to CBS Aruba over the period 1991-2000 'the new jobs created by Aruba's growing economy were increasingly filled by foreign workers; "... '(A) pproximately 12,700 jobs were added to the labour force. Natives represented only a small share of this labour market growth: 10.8 percent (out of a total growth of 43.4% over this 10-year period, ed.). The rest of the growth (32.6 percent) can be attributed to new immigrants'.

As the Sint Maarten tourism industry took off somewhat earlier, the demographic transition took place sooner as well. According to Will Johnson it started as early as 1980; "The uncontrolled growth of the island has led to a massive influx of workers, the majority of whom come from other Caribbean islands". In 1981 40% of the Sint Maarten population was born on this island, 20% in other islands of the Netherlands Antilles, while 40% were immigrants, mainly from the surrounding region.



after 1980 may be attributed to structural immigration.

Although the new hotel industry absorbed a great number of local

Figure 1. Aruba: population and cumulative net migration 1980-2012

From being close to depopulated

in and after WWII, the economic development associated with tourism brought Sintmaarteners back from the dwindling oil industries of Aruba and Curaçao and attracted numerous immigrants from the wider Caribbean. Figure 2 shows the extremely high contribution of immigration to Sint Maarten population growth in the tourism-dominated era. Clearly visible as well are the effects on population numbers of the devastation and economic downturn caused by hurricanes Luis in 1995 and Lenny in 1999. More than in the case of Aruba however, official population statistics pertaining to Sint Maarten should be handled with caution. As early as 1995 the number of undocumented residents was estimated at more than 10-12,000, an estimate consistently mentioned in the years since. In 1995 this number constituted roughly 25% of the actual population.

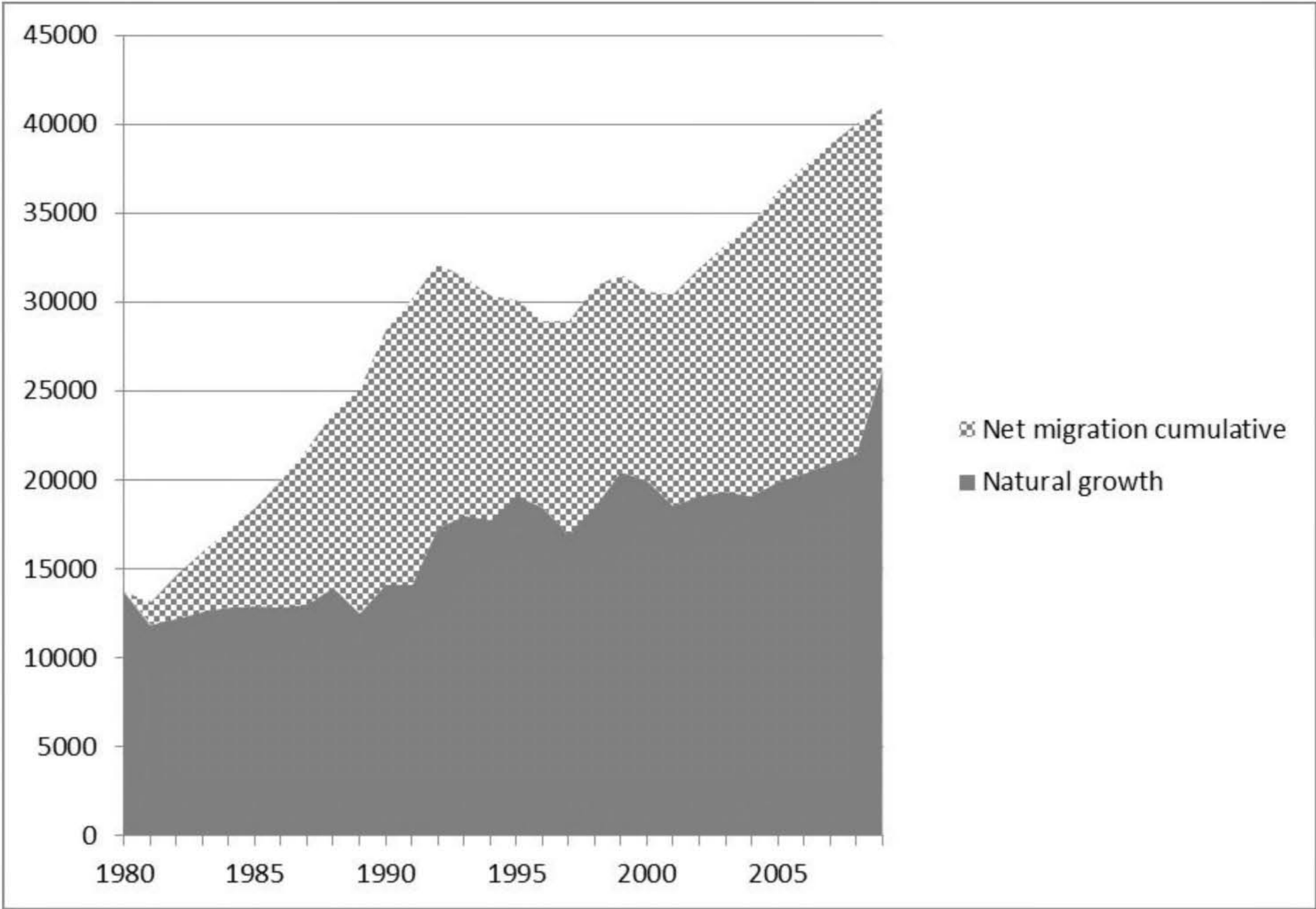


Figure 2. Sint Maarten: population and cumulative net migration 1981-2009

Next to the directly tourism-related employment there has also been a large growth in construction sector. In the case of Aruba, indigenous workers on balance actually moved out of the hotel sector and into other areas of occupation. CBS Aruba reports that in 2000, about 60 percent of all persons born in developing countries were either

working in the sectors ‘hotels and restaurants’, ‘wholesale and retail trade, repair’ or ‘construction’. The distribution of foreigners from developing countries in Aruba over the industrial branches displays only slight changes between 1991 and 2000. In the same period, employment of persons born in Aruba increased strongly in the highest categories (senior administrators, managers, professionals) and actually shrank in the lower categories. Clearly, the indigenous population moved into the positions of higher pay and responsibility, while the labour market was resupplied at the base with immigrant labour. Data of comparable quality on the Sint Maarten situation is not readily available, but indications over over-representation of those with Dutch citizenship in civil service and in better paid positions in the private sector are strong.

Aruba and Sint Maarten are examples of fast extensive growth

At first glance, Aruba as well as Sint Maarten is a shining example of successful, fast economic growth based on a commitment to the tourism industry, as is apparent from -overall- GDP numbers, the TPI index and the SITE classification, as discussed above. This section will zoom in on a number of questions regarding labour productivity and average income. Did the volume growth

in tourism activities result in an equal or perhaps higher growth in real GDP in either country? Correcting for population growth,

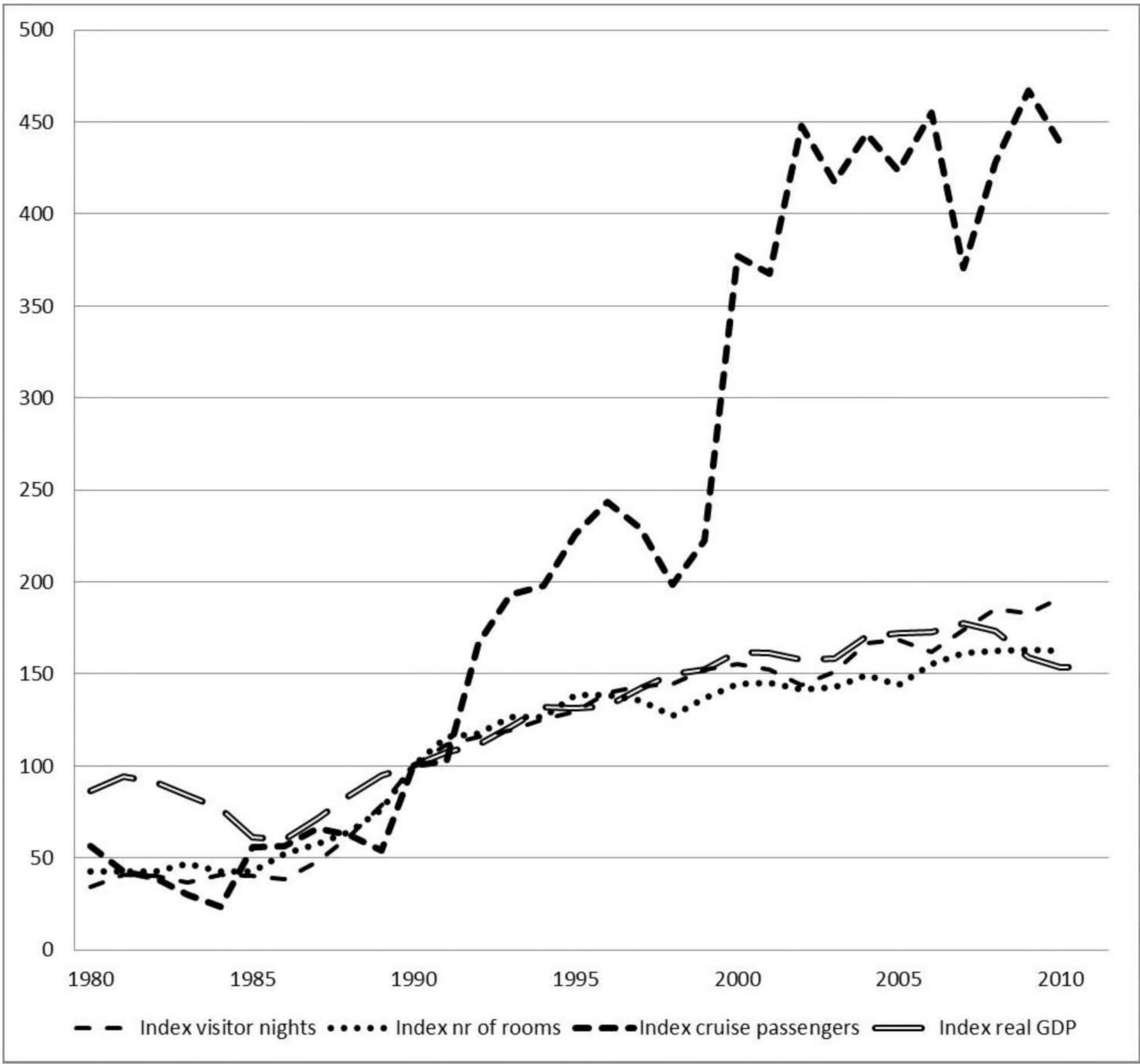


Figure 3. Aruba: indices of selected tourism indicators and real GDP (1990=100)

did real per capita GDP show any significant increase in Aruba or Sint Maarten since the onset of large scale tourism? After all, with the development of the tourism industry over the years, we would expect labour productivity to have grown as well. A certain evolution in the types and nature of hospitality products offered, economies of scale, increased linkages, positive externalities in the infrastructure used might all have contributed to a higher value added per worker indicated by a rising real per capita GDP.

Immigrant workers are typically not immediately accompanied by their families, and even less by retirees. This effect increases the proportion of the economically active to the total population. This in turn leads to an overstatement of productivity when measured through real per capita GDP. In other words, under circumstances of steady immigration of economically active persons, with actual labour productivity assumed constant, we should see a steadily increasing real per capita GDP.

Figure 3 shows that in Aruba, since the firm establishment of the tourism sector in its present form in 1990, volume has grown more than 60% in terms of stay over capacity and almost doubled in visitor nights. Real GDP however, is only just keeping up with the number of rooms and visitor nights. Taking into account the contribution of cruise tourism growth and the absence of significant other economic sectors, these indicators point to a stagnant or even decreasing impact of tourism volume on economic growth, where an increase in value added per unit of volume would have pointed to increasing product quality and labour productivity.

Figure 4 shows that cruise tourism has become an even more dominant source of activity in Sint Maarten over the past decades. Over the same period, the number of stay over visitors declined, though stabilizing after the mid-1990s hurricane disaster. The cruise tourism line clearly shows the effects of the 1995 and 1999 hurricanes as well. Cruise tourism stagnated again after 2005 and was further hit by the

2008 financial crisis. Economic recovery and expansion of harbour facilities brought a renewed growth until the present day. The available macro-economic model for Sint Maarten indicates that the (direct) contributions of total stay over tourism and cruise tourism to GDP relate as 56-44 in favour of the former. Based on this, a 20% drop in stay over tourism combined with a 250% rise in cruise tourists compared to 1991 levels should have resulted in a real GDP growth of more than the roughly 60% now recorded. Therefore, as in the case of Aruba, there is a lack of translation of tourism volume growth into real GDP increase, and therefore a lack of productivity growth.

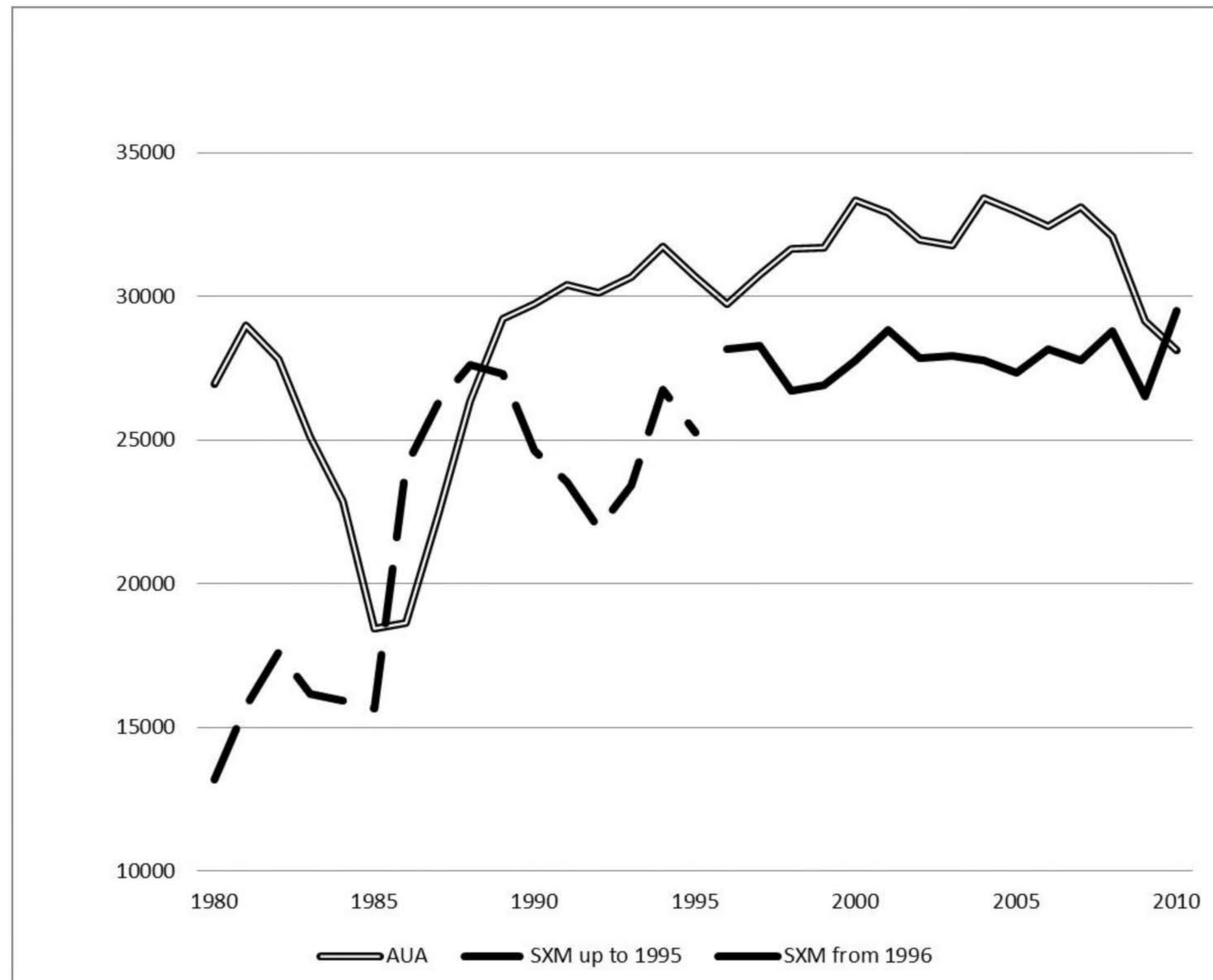


Figure 5. Real per capita GDP Aruba and Sint Maarten, 1980-2010 (US\$; CPI 1996=100)

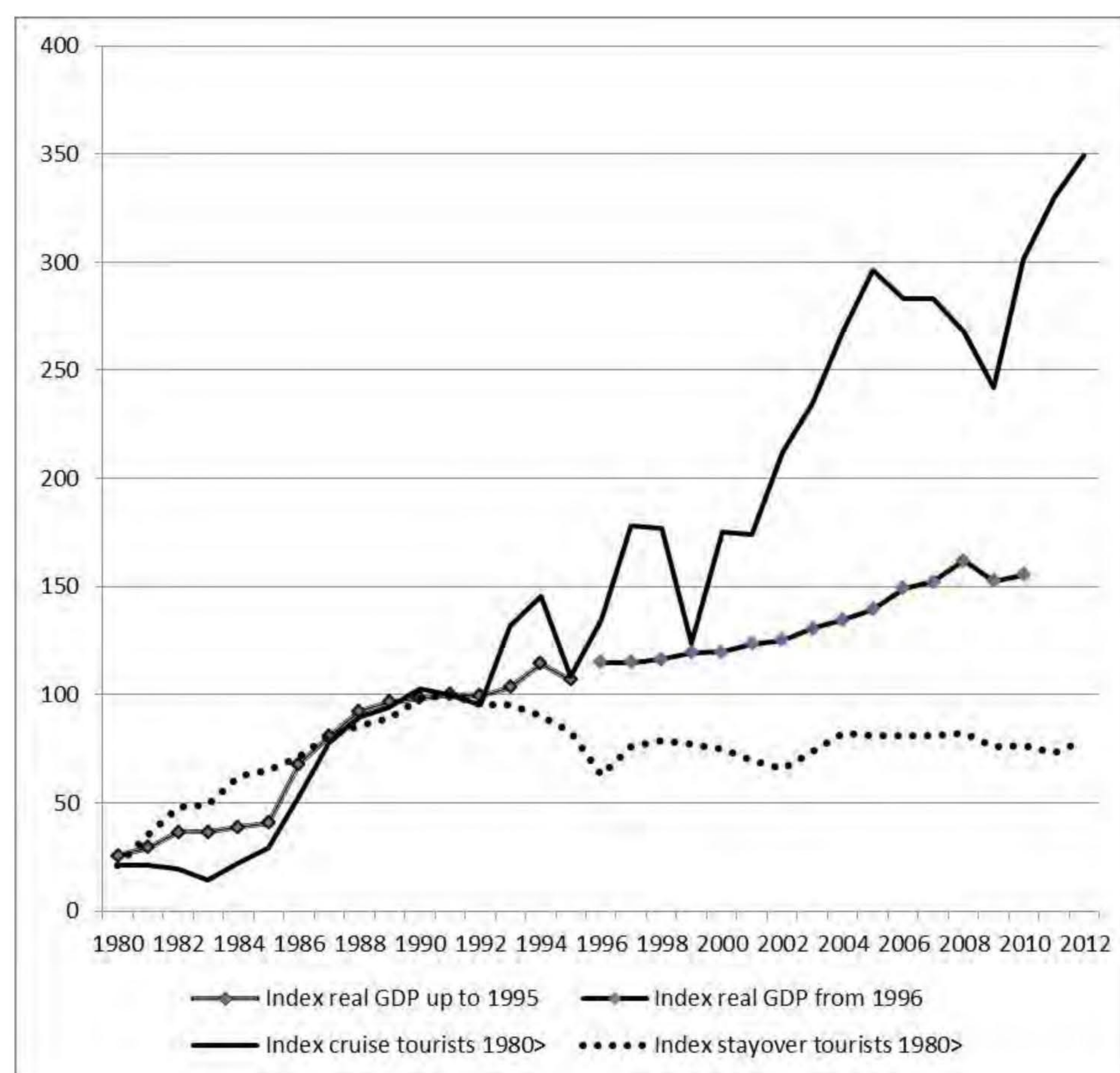


Figure 4. Sint Maarten selected tourism indicators and real GDP indices (1991=100)

In figure 5, for both islands, real per capita GDP is chosen as an indicator for labour productivity. The Aruban development clearly shows the crash associated with the closure of the Lago in 1985, and the subsequent rapid recovery. After 1990 the gain in real per capita GDP levels off, not structurally increasing again until the present day.

The Sint Maarten curve in figure 5 clearly shows an initial gain in productivity similar to Aruba associated with the tourism boom of the 1980s, again levelling off as soon as the tourism sector becomes fully dominant in the economy. As we have seen earlier, in both cases further development does increase the volume of tourism as well as the volume of the labour force, partly through immigration. However, the quality of economic activity in terms of productivity remains

unchanged. As stated above, this effect is compounded when taking into account that the proportion of economically active persons to the total population actually increased through immigration, as immigrants mostly fall into economically active age groups.

When real per capita GDP is used as a measure of average income, the conclusion is similar. The trend is not rising despite the rapid growth of total GDP. The usual reservations brought forward when using real per capita GDP as income measure only make matters worse. To name one important factor; in a situation with heavy foreign investment, part of profits and interest comprised in GDP will flow overseas, resulting in a GNI smaller than GDP. Assuming the part of value added flowing to foreign recipients is more or less constant, this would not change the horizontal direction of the per capita GDP trend, and it would just shift it to a lower level.

What will the future bring for Aruba and Sint Maarten?

Combining the immigration-dependent, extensive economic growth trends outlined above with the obvious spatial constraints of both islands, the outlook for Aruba and Sint Maarten seems bleak.

The observation that

environmental and physical space is inevitably running out, often described in terms of 'carrying capacity' has been made before. It is obvious even to the casual observer and unfortunately also to many visitors that the intensity of the tourism industry and the increasing population density negatively affect the tourism product itself and the quality of life in general. The concept of 'carrying capacity' however does not come with many useful operational indicators. Indeed, although theoretically a Caribbean tourist version of Singapore may not be out of the question, the cost of compensating for the negative externalities involved will probably become prohibitive.

The data presented here paint a picture of a rather consistent extensive growth model over several decades, which makes it a very real question why no successful attempt was made in either country to shift economic development towards a more productive, less immigration dependent and less space-consuming direction. After all, even outside the context of island limitations, warnings about the weariness on the demand side of tourism and the ensuing need for a tourist destination to constantly reinvent itself go back to Butler's tourism life cycle concept of the 1980s. Aruba and Sint Maarten have been residing in the 'consolidation stage' for decades, and staving off the ensuing 'stagnation stage' will not be successful much longer.

While Aruba and Sint Maarten seem to be good examples of dedicated, full-blown 'speciation' both islands seem to lack the real strategic flexibility found in some other islands to effectively take their tourism industry to the next level. The fact that smaller scale, higher value added tourism development is in fact possible in the Caribbean is shown by examples like Anguilla, in the direction of high-end luxury tourism, or by Dominica, in the

direction of eco-tourism. Neither Aruba nor Sint Maarten therefore entirely fulfils the niche-oriented potential shown by some other island developing nations in the PROFIT or SITE categories.

As the current extensive growth model has persisted for so long, the assumption is justified that this model must be in the interest of the major stakeholders, or is at least perceived by them to be so. A full exploration of these interests is outside the scope of this article, but the data at hand provides us with a few pointers. Externally, foreign investors in a certain category of tourism industry evidently still consider Aruba as well as Sint Maarten attractive investment locations offering a known and consistent investment climate with stable demand factors. Internally however, governments in both islands have not been successful in more selectively attracting a different class of investments. Lip service has been paid to such upgrading objectives since the 1990s, but few results have been visible. This may indicate shortcomings in the execution of policy, a lack of political urgency or even the absence of a real interest in change.

Certain characteristics of the labour market in both countries offer clues on interests perpetuating the current model as well. As immigrant labour has been continually added, mostly at the bottom of the social pyramid, those who have Dutch citizenship have increasingly moved into mid-level and higher positions in the private sector, and certainly claimed most positions in the government apparatus. As a consequence, while overall average real per capita GDP and income may have been stagnant, this is most probably not true for the average income of the pre-immigration population of both islands. The extent of the socio-economic 'moving up' of the original population and its effects on the perseverance of the current development model is one of the most interesting questions

arising from the available data. In this context, the phenomenon of 'rent-seeking' behaviour by organisations and individuals merits further research as well.

The direction in which perspectives for a more sustainable evolution of Aruba and Sint Maarten are to be found are largely implied in the shortcomings of the current model. As an overall approach, the in itself defensible course of 'speciation' needs to be complemented with the right amount of strategic flexibility. Within the tourism sector, new niches with higher value added need to be sought out, while the bulk of the current hospitality industry needs to shrink in quantity and grow in quality. Premium trends in tourism demand need to be sought out and catered to more effectively. Such initiatives would take Aruba and Sint Maarten back on the track of 'resilience'. Achievement of these objectives will take strategic efforts in close public-private cooperation, affecting all factors of production and the institutional framework in which they operate.

To this end, a different kind of investor has to be attracted; one that brings a technologically more advanced 'production process' indicated for instance by higher levels of value added per room and per employee. This should be feasible in itself; both islands constitute known and proven markets and investment locations, and there is no a priori reason why the investment climate would not support a more productive class of investment. Even if most of the tourism know-how implemented comes embedded in foreign direct investments, this is by no means a necessity. With the level of experience developed in Aruba and Sint Maarten over the past decade, the home-grown portion of their tourism industry should certainly be able to expand.

Regardless of the source of capital invested, the key to success will be in the levels of education and skills of the workforce complementary to the new formulas implemented, and in the physical and

institutional 'infrastructure' offered by governments. Higher and more effective education of the existing workforce will be necessary to operate more advanced (luxurious, varied, specialized) hospitality formulas. Furthermore, a more luxurious class of hotels, condominiums or timeshare developments can only prosper in upgraded surroundings as well. This ranges from better roads to a cleaner environment, less crowdedness and different types of adjoining leisure activities.

As to human resources, alternative solutions will greatly impact the quality and quantity on the labour market. Given the islands' circumstances, a more intensive type of growth necessarily implies substantial investments in the education and improved skill set of workers, at the same time eliminating the need for growth of the total workforce. Eventually, this may halt or reverse the migration trend. This is true for both islands, but especially important in Sint Maarten, where population density is the highest in the Caribbean and adversely affects quality of life and the tourism product both.

Conclusions

Aruba and Sint Maarten constitute a specific subset of the SITE category, distinguishable by its exceptional rate of tourism volume expansion as well as immigration, even by the standards of the SITE model itself. Within the vulnerability-resilience debate the evidence regarding Aruba and Sint Maarten points towards resilience, as even heavy external shocks of the past decades have shown not to fundamentally weaken their growth paths. Both islands fit the description of the 'speciation' strategy outlined in the island development literature. Population figures of both islands clearly show the very high levels of net immigration in comparison to natural population increase, underscoring the immigration-dependent nature

of their development model. This phenomenon is stronger for Sint Maarten than for Aruba. The dependence of both countries' economic development on immigrant labour makes their development a regionally embedded rather than a 'stand-alone' island model.

Comparison of selected tourism volume indicators to real GDP growth for both islands shows that real GDP growth has not exceeded production volume growth since 1990. Productivity per unit of tourism capacity or yield per unit of tourism service rendered has not increased. The data therefore points clearly towards a model of high-paced extensive growth, combining rising volume with lagging productivity. An assessment of real per capita GDP development over time yields the same conclusion; after a period of rising real per capita GDP during the initial years of establishment of the tourism industry in its current form, both countries' real per capita GDP levels are no longer increasing, with Aruba settling at a slightly higher level than Sint Maarten. The indicators observed in both countries point to a model of extensive economic growth, i.e. a situation of growth in output volume without an increase in value added or output per unit of production factor.

Combining the fact of extensive growth with the self-evident limited space of both island territories, the Aruba/Sint Maarten model can clearly not be perpetuated in the long run. The future perspective is therefore either one of stagnation when the current model hits its physical boundaries, or one of evolution, where a different type of investment, embodying a higher level of technology, is combined with a more highly educated workforce and a more effective government administration, to increase productivity and real per capita GDP in both countries.

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